

- 43 **Elias P**, Halstead K, Prandy K. *CASOC : computer-assisted standard occupational coding*. London: HMSO, 1993.
- 44 **Meltzer H**, Gill B, Petticrew M, et al. *OPCS surveys of psychiatric morbidity in Great Britain. Report 1. The prevalence of psychiatric morbidity among adults living in private households*. London: HMSO, 1995.
- 45 **DETR**. *Indices of Deprivation 2000*. London: Department of the Environment, Transport and the Regions (DETR), 2000.
- 46 **Goldstein HG**. *Multilevel statistical models*. London: Arnold, 1995.
- 47 **Chambers JM**, Hastie TJ. *Statistical models in S*. Pacific Grove: Wadsworth and Brooks-Cole, 1992.
- 48 **Rasbash J**, Browne W, Goldstein H, et al. *A user's guide to MLwiN, version 2.1c*. London: Institute of Education, 2000.
- 49 **Macintyre S**, Ellaway A, Cummins S. Place effects on health: how can we conceptualise, operationalise and measure them? *Soc Sci Med* 2002;**55**:125–39.
- 50 **Macintyre S**, Ellaway A. Neighborhoods and health: an overview. In: Kawachi I, Berkman LF, eds. *Neighborhoods and health*. New York: Oxford University Press, 2003.
- 51 **Hart C**, Ecob R, Davey Smith G. People, places and coronary heart disease risk factor: a multilevel analysis of the Scottish Heart Health Study archive. *Soc Sci Med* 1997;**45**:893–902.

ECHO



Please visit the *Journal of Epidemiology and Community Health* website [www.jech.com] for a link to the full text of this article.

Incidence of cancer among UK Gulf war veterans: cohort study

Gary J Macfarlane, Anne-Marie Biggs, Noreen Maconochie, Matthew Hotopf, Patricia Doyle, Mark Lunt

Objectives: To determine whether incidence rates of cancer are higher in UK service personnel who were deployed in the Gulf war than in those not deployed and whether any increased risk of cancer is related to self reported exposures to potentially hazardous material during the period of deployment.

Design: A cohort study with follow up from 1 April 1991 (the end of the Gulf war) to 31 July 2002.

Participants: 51 721 Gulf war veterans and 50 755 service personnel matched for age, sex, rank, service, and level of fitness who were not deployed in the Gulf (the Era cohort).

Main outcome measures: Incident cancers, identified on the NHS central register.

Results: There were 270 incident cancers among the Gulf cohort and 269 among the Era cohort (incidence rate ratio 0.99, 95% confidence interval 0.83 to 1.17). There was no excess in site specific cancers among the Gulf cohort. Adjustment for lifestyle factors (smoking and alcohol consumption) did not alter these results. In the Gulf cohort, risk of cancer was not related to multiple vaccinations or exposure to pesticides or depleted uranium during deployment.

Conclusion: There is no current excess risk of cancer overall nor of site specific cancers in Gulf war veterans. Specific exposures during deployment have not resulted in a subsequent increased risk of cancer. The long latent period for cancer, however, necessitates the continued follow up of these cohorts.

▲ *BMJ* 2003;**327**:1373–1375.